

SUPPORT FOR THE AMENDMENTS

This Amendment cancels Claims 3, 6 and 13; and amends Claims 1, 4-5 and 8-9. Support for the amendments is found in the specification and claims as originally filed. In particular, support for Claims 1 and 4-5 is found in canceled Claims 3, 6 and 13, respectively, and in the specification at least at page 7, lines 12-14. No new matter would be introduced by entry of these amendments.

Upon entry of these amendments Claims 1, 4-5, 7-12 and 14-19 will be pending in this application. Claims 1, 4 and 5 are independent.

REQUEST FOR RECONSIDERATION

Applicants respectfully request entry of the foregoing and reexamination and reconsideration of the application, as amended, in light of the remarks that follow.

The present invention relates to a carbon-powder made porous material product formed into a honeycomb, a corrugated fiberboard, or a cardboard shape by adding a binding agent to powdered carbon.

Basically, the porous structural body of the present invention is constituted as a framework shape by combining thin sheet-shaped things. The body is formed by adding a binding agent to the powdered carbon. When heated, dissolution of the binding agent causes powdered carbon to break up, and the shape cannot be maintained. In order to solve this problem, phenol resin which has thermosetting properties is used to enable the shape to be maintained even after heating. In addition, Si powder is added to phenol resin since the amorphous carbon made by thermal decomposition does not react with molten Si well. The merit of adding Si powder to phenol resin is that the amorphous carbon reacts with Si powder to form SiC having good wettability with molten Si, and that pores necessary for volume

increasing reaction between molten Si and carbon can be formed because the reaction is a volume reduction reaction.

Claims 1, 3-6, 9, 13 and 16 are rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 3,140,193 ("Kane").

Claims 7-8, 11, 14-15 and 18 are rejected under 35 U.S.C. § 103(a) over Kane in view of U.S. Patent No. 4,293,512 ("Luhleich").

Claims 10, 12, 17 and 19 are rejected under 35 U.S.C. § 103(a) over Kane and Luhleich in further view of U.S. Patent No. 4,904,424 ("Johnson").

Claims 1, 4-5, 7-9 and 11 are rejected under 35 U.S.C. § 103(a) over Luhleich.

Claim 3 is rejected under 35 U.S.C. § 103(a) over Luhleich in further view of U.S. Patent No. 5,389,325 ("Bookbinder").

Claim 6 is rejected under 35 U.S.C. § 103(a) over Luhleich in further view of Bookbinder.

Claims 10 and 12 are rejected under 35 U.S.C. § 103(a) over Luhleich in further view of Johnson.

Forming SiC by impregnating carbon bulk with molten Si is well known as a reaction sintering method. Unlike the general bulk material, the carbon-powder made porous material of the present invention is a carbon product formed into a honeycomb, a corrugated fiberboard, or a cardboard shape by adding a binding agent to powdered carbon.

In contrast, the invention of Kane relates to a bulk body of molded graphite. Kane's Claim 1 recites "dense nuclear grade graphite". Kane's Example 1 describes a molded body having dimensions of 3 cm x 2 cm x 2 cm.

The invention of Luhleich also relates to a bulk body of molded graphite (Luhleich at column 1, lines 14-17). Luhleich's Claim 1 recites "graphite molded body".

Bulk material has pores, but they are a large number of small pores which are located at random in the material. These pores get smaller when impregnated by molten Si.

Unlike the bulk material of Kane and Luhleich, the porous material formed into a honeycomb, a corrugated fiberboard, or a cardboard shape according to the present invention is made dense in its framework part by molten Si impregnation, while the pores in the honeycomb shape and the corrugated shape remain. The cardboard shape of the present invention is also formed as a framework part which contains large pores.

Because Kane, Luhleich, and the secondary references fail to disclose or suggest the combination of features of independent Claims 1, 4 and 5, the prior art rejections should be withdrawn.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Applicants respectfully request favorable consideration and prompt allowance of the application.

Should the Examiner believe that anything further is necessary in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon



Corwin P. Umbach, Ph.D.
Registration No. 40,211